

## ABC of adolescence

### Fatigue and somatic symptoms

Russell Viner, Deborah Christie

Fatigue, headache, stomach ache, and backache are common. Large international surveys show that about 8% of adolescents report daily headaches, 10% daily backache, and 16% daily sleepiness in the mornings. Fatigue is even more common—about a third of both boys and girls have substantial fatigue four or more times a week.

### Competing demands in adolescence

Most adolescents with these symptoms do not seek help from their doctor. They can present diagnostic dilemmas when they do, however. In most cases, the symptoms reflect not an organic disorder but an imbalance between the increasing educational, social, and sports demands on young people and physiological “debts” owed to rapid growth and sexual development.

Adolescents, for example, need more sleep than children and adults, yet social and educational demands often mean that they sleep less. Adolescents may also have a physical hypersensitivity to changes in the growing body. For a minority, these symptoms may represent a functional or somatoform disorder, where psychological problems are expressed through physical symptoms rather than through language. Unexplained abdominal pain is a common example of this in early adolescents, with older adolescents more likely to have headaches or fatigue.

### Somatic symptoms

Signs or symptoms suggestive of more serious somatoform disorder include the co-occurrence of multiple symptoms (such as headaches with fatigue and muscle aches), chronicity (symptoms lasting more than three months), diminishing school attendance, and social isolation, together with a history of recent family, school, or psychological problems.

When pain or symptoms remain unexplained, they should be investigated with caution. Although it is important not to miss an organic disorder—and there is frequently family pressure to find an “answer”—repeated investigations can reduce the effectiveness of rehabilitation and symptom control.

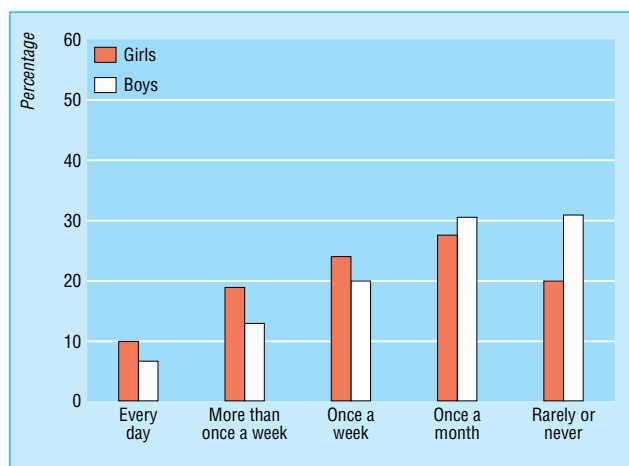
After exclusion of common organic disorders, consider how the symptom affects the young person’s school, social, and family life, as well as how much distress or pain the symptom causes. Take an adequate history—including social, school, and family issues—and assess whether bullying, depression, or family conflict may be contributing.

#### Headaches

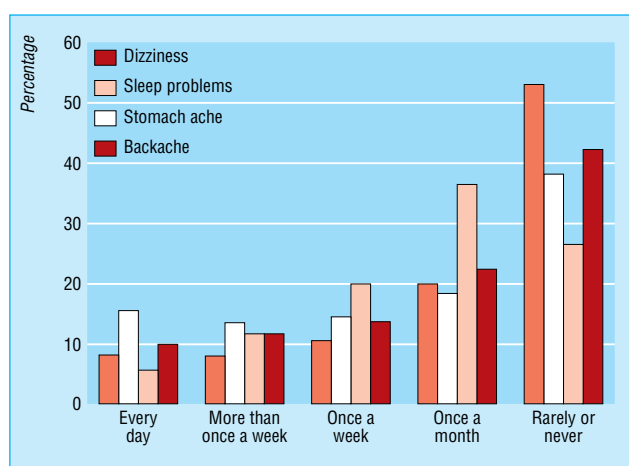
Headaches, along with stomach ache and backache, are the commonest chronic symptoms in adolescence apart from fatigue. The differential diagnosis can be fairly extensive. Most cases will be forms of muscular tension headaches. Migraine affects only about 2% of adolescents.

Other common causes of headache include extracranial problems (ear, sinus, or tooth infections, or temporomandibular joint disease) and excess caffeine consumption (from coffee or fizzy drinks). It is worth while excluding poor visual acuity as a cause of tension headaches. Uncommon causes of headaches

This is the final article in a series of 12 articles



Frequency of headache in the previous six months in 11-17 year olds in Europe. Adapted from: World Health Organization. *Health behaviour in school-aged children, 1997-1998*. Calverton, MD: Macro International, 2002



Prevalence of somatic symptoms (other than headache) in the previous six months in 11-17 year olds in Europe. Adapted from *Health behaviour in school-aged children, 1997-1998* (see above)

**Assess the young person’s mood—symptoms associated with depressed mood (flat or constrained affect, being tearful, feeling hopeless, and loss of interest in friends and school), substantial loss of quality of life, or failure to attend school should be viewed with concern**

#### Signs that further neurological evaluation of headaches is needed

- Abrupt onset of, or sudden change in, symptoms
- Vomiting
- Morning headaches
- Headache wakes patient from sleep
- Reduction in school performance
- Associated seizures or neurological signs

are similar to those in adults, although it is important to note that benign intracranial hypertension is relatively more common in adolescence.

### Abdominal pain

Recurrent abdominal pain may present a particular diagnostic dilemma in early adolescents. This is particularly so in girls, in whom gynaecological causes of pain could be present. In older adolescents, the range of symptoms is more similar to that in adults. Upper abdominal pain may suggest non-ulcer dyspepsia, and *Helicobacter pylori* infection should be excluded. Changes in bowel habit (such as diarrhoea or increased frequency of stools with pain that is relieved by defecation) may suggest irritable bowel syndrome, which can be seen from mid-adolescence onwards.

## Fatigue

Fatigue is almost a "normal" part of adolescence. The increase in fatigue between childhood and adolescence almost certainly reflects both the physiological demands of growth and dramatic increases in social and educational demands. Two thirds of adolescents report morning fatigue to the extent of impairing their waking more than once a week.

Acute fatigue syndromes associated with viral illnesses are very common among teenagers. These states are particularly marked with certain viral infections, such as Epstein-Barr virus infections (mononucleosis or glandular fever). In developed countries, Epstein-Barr virus is predominantly an illness of teenagers and few reach their 20s without seroconversion; about 9% are estimated to develop severe acute fatigue syndrome after infection. Treatment of such postviral acute fatigue syndrome consists of excluding secondary bacterial infection or anaemia and providing reassurance.

### Chronic fatigue syndrome

Fatigue in young people is serious when it persists for more than three months and impairs school attendance, academic results, and peer relationships. The definition of chronic fatigue syndrome (CFS) in adults has been much debated. The syndrome, often known by patients as myalgic encephalomyelitis or postviral fatigue syndrome, was first commonly described in the 1980s and is now claimed by some researchers to be the commonest medical cause of long term absence from school. Recent epidemiological evidence suggests that chronic fatigue syndrome, as defined on the basis of the criteria of the Centers for Disease Control and Prevention (CDC), occurs in about 0.2-0.6% of adolescents aged 11-15 years.

Continuing controversy over the existence of CFS, together with uncertainty and contradictory research findings about aetiology and treatment, has made the management of CFS extremely difficult for health professionals and patients alike. In Britain, this situation recently led to a report by the chief medical officer that acknowledged the reality of the illness in children and young people and emphasised that good quality, evidence based care should be provided.

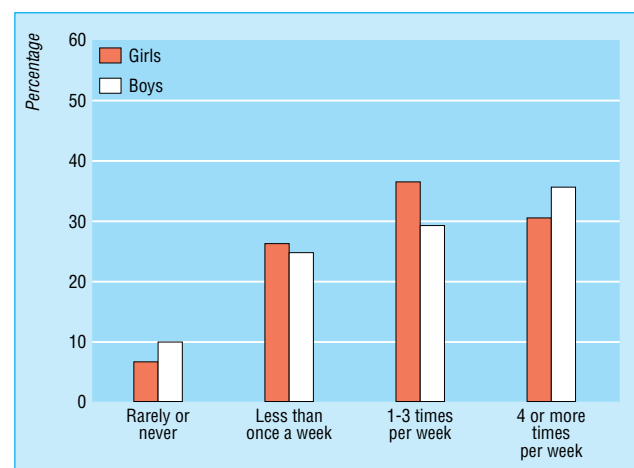
The aetiology of CFS is unknown, with many hypotheses proposed. No convincing evidence exists to support persisting viral infection. Patients do show an excess of depression, other psychological symptoms, and low self esteem, although data on the psychological and endocrine states of patients show that CFS is not merely a masked form of depression, somatoform disorder, or refusal to attend school. Given the high prevalence of acute postviral fatigue syndromes in adolescence, it is unclear why acute fatigue syndromes become chronic in some young

### Differential diagnosis of chronic abdominal pain

**Common causes**—Functional abdominal pain, constipation, dysmenorrhoea, urinary tract infection, dyspepsia associated with *Helicobacter pylori*, irritable bowel syndrome

**Uncommon causes**—Chronic appendicitis, pelvic inflammatory disease, gastro-oesophageal reflux, peptic ulcer disease, mittelschmerz

**Rare causes**—Inflammatory bowel disease, renal calculi, ovarian cyst, biliary calculi, sickle cell crisis



Frequency of serious morning fatigue in 11-17 year olds in Europe. Adapted from *Health behaviour in school-aged children, 1997-1998* (see first graph)

### Centers for Disease Control and Prevention's diagnostic criteria for chronic fatigue syndrome\*

#### Major criteria (both required)

- Debilitating fatigue reducing activity to less than 50% of the patient's premorbid activity for at least six months (in practice, with adolescents this is usually reduced to three months)
- Symptoms not explained by other medical or chronic psychiatric illness

*The presence of non-psychotic depression does not preclude the diagnosis of chronic fatigue syndrome*

#### Symptom criteria (four required)

- Sore throat
- Painful cervical or axillary lymphadenopathy
- Muscle discomfort or pain
- Prolonged generalised fatigue after usual levels of activity
- Headaches
- Arthralgias (without swelling or redness)
- Neuropsychological disorders such as forgetfulness and lack of concentration
- Sleep disturbance (unrefreshing sleep)

\*Adapted from Fukuda et al. The chronic fatigue syndrome: a comprehensive approach to its definition and study. *Ann Intern Med* 1994;121:953-9.

### Key points from chief medical officer's working party on chronic fatigue syndrome for young people

- Young people do develop CFS, although many recover
- Important differences exist between children and adults in the nature and impact of the syndrome and its management
- CFS can threaten adolescents' physical, emotional, and intellectual development and disrupt education and social and family life
- A prompt and authoritative diagnosis is needed
- Ideal management is patient centred, community based, multidisciplinary, and coordinated, with regular follow up
- Community paediatric services need to be available for most young people and all those with prolonged school absence
- The clinician who coordinates care must consider early the educational needs and impact on the family and parents (or carers)

people. One study among adults has suggested that major events and depression around the time of Epstein-Barr virus infection may be linked to the persistence of fatigue.

CFS is likely to be a collection of different conditions and that several biopsychosocial “causal pathways” can lead to chronic fatigue. It is therefore best understood as a chronic low functioning state in which biological causal factors have resolved yet the illness remains because of physical deconditioning, sleep disturbance, and psychosocial factors. In adolescence, CFS usually occurs soon after the transition from primary to secondary school (onset peaks at 12-14 years). This is a time when young people are exposed, through mixing in larger schools, to new infections (such as Epstein-Barr virus) and to considerable stresses from the greater demands of secondary school. Rest and withdrawal from school and normal activities can lead to frustration, alternating overactivity and underactivity, disturbed sleep, social isolation, and depression, all of which may help to maintain the chronic fatigue.

Patients must be assessed with a combined biopsychosocial approach (once treatable conditions have been excluded). The differential diagnosis includes endocrine abnormalities, connective tissue disorders, neurological disorders, and psychological disorders (including depression, eating disorders, and refusal syndromes). Psychosocial assessment should include consideration of individual and family function; relationships with friends; school performance; and history of bullying, refusal to attend school, and psychiatric disorders. The most common comorbid psychological problems include depression and sleep disturbance.

CFS in young people should be diagnosed promptly and authoritatively and not be a delayed diagnosis of exclusion. Published case series suggest that most young people are substantially better or cured within two to three years.

## Management of fatigue and somatic symptoms

After treatable causes of persistent somatic symptoms have been excluded, management based on a rehabilitative model is helpful for most young people. However, it is essential not to label symptoms as psychological, as this will often alienate the family. Some families readily understand the nature of psychosomatic causation, but many young people and their families are resistant to a psychological explanation for the symptoms and feel that such explanations mean they are not being believed.

It is generally more helpful to avoid such simplistic mind-body splits and avoid searching for psychological problems or “causes” within the family. But acknowledge such problems where they are apparent.

It is most useful to take a two pronged pragmatic approach, based on improving function while controlling symptoms. With a pragmatic approach, families generally accept the importance of psychological factors if it is recognised that these factors may equally be consequences as much as causes of illness. Rehabilitation involving physical, psychological, and social elements can be useful in chronic pain or chronic fatigue syndromes.

### Chronic fatigue syndrome

Randomised clinical trials in adults have shown that cognitive behaviour therapy and graded exercise programmes are helpful in most patients. Uncontrolled studies in young people suggest that outpatient multidisciplinary rehabilitation and cognitive behaviour therapy within the family are helpful. An individual programme should be developed for each patient, based on the

### Common additional features of chronic fatigue syndrome in adolescents

- Abdominal pains
- Nausea
- Loss of appetite
- Weight loss or failure to gain weight appropriately for age
- Blurred vision
- Fall in school performance and attendance



### Medical investigations for chronic fatigue syndrome\*

- Full blood count
- Acute phase protein changes (erythrocyte sedimentation rate, C reactive protein)
- Basic biochemistry tests
- Thyroid function
- Creatine kinase testing
- Immunoglobulin testing
- Autoantibody screen (including antinuclear antibodies, rheumatoid factor, coeliac antibodies)
- More extensive investigations (testing for glucocorticoid deficiency and viral serology—for example, for Epstein-Barr virus and Lyme disease—if indicated by history or symptoms)

\*Adapted from *Chronic Fatigue Syndrome* (see Further Reading box)

### Managing complex somatic symptoms

- Acknowledge the reality of symptoms despite a lack of known cause
- Avoid simplistic mind-body splits
- Enable ownership of the management programme by the young person; engagement of the patient and family is essential
- Focus on functional improvement through rehabilitation and on symptom control
- Use multidisciplinary approaches; occupational therapy can be particularly helpful
- Engage the patient in setting goals, with frequent reviews

### Generic rehabilitation programme for teenagers

- Graded “return to school” programme, combined with home tuition
- Activities and exercise programme, graded over many months and supervised by physiotherapist or occupational therapist
- Family support—informal or with formal family therapy sessions
- Cognitive behaviour therapy

**No high quality evidence exists to guide the treatment of chronic fatigue syndrome in children and young people**

identification of maintenance factors that prevent recovery: biological factors (such as sleep disturbance and physical deconditioning); psychological factors (such as personality, coping style, and comorbid depression); and social factors (such as family losses or stress, or parental conflict over management of their child's condition).

### Chronic pain

Management of recurrent or persistent pain can be extremely difficult. When symptoms are severe, persistent, and unexplained, it may help to consider the problem as a regional chronic pain syndrome. This focuses the management on chronic pain as a symptom rather than on finding a cause related to the specific site of the pain. Lack of exacerbating and relieving factors and lack of response to analgesia are common characteristics of chronic pain syndromes. The most effective treatment for such syndromes in young people is multidisciplinary rehabilitation alongside symptom control. Although this can be done in primary care, the involvement of a chronic pain service with experience of adolescents can be extremely useful.

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The ABC of adolescence is edited by Russell Viner, consultant in adolescent medicine at University College London Hospitals NHS Foundation Trust and Great Ormond Street Hospital NHS Trust (rviner@ich.ucl.ac.uk). The series will be published as a book in summer 2005.

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### Management of chronic fatigue syndrome

- Rehabilitation should be multidisciplinary
- Selective serotonin reuptake inhibitors may raise energy levels if mood is low, but no evidence exists of effectiveness
- Melatonin may be helpful if sleep is badly disturbed, but no evidence exists of effectiveness
- Inpatient rehabilitation is rarely necessary; use only if outpatient management fails

### Further reading and resources

- NHS Centre for Reviews and Dissemination. Interventions for the management of CFS/ME. *Effective Health Care* 2002;7:1-12
- CFS/ME Working Group. Report of the CFS/ME working group: report to the chief medical officer of an independent working group. 2002. (Search via [www.dh.gov.uk](http://www.dh.gov.uk))
- Royal College of Physicians. *Chronic fatigue syndrome*. London: RCP, 1996. (Report of a joint working group of the Royal Colleges of Physicians, Psychiatrists and General Practitioners.)
- McGregor RS. Chronic complaints in adolescence: chest pain, chronic fatigue, headaches, abdominal pain. *Adolescent Medicine State of the Art Reviews* 1997;8:15-31.
- [www.ayme.org.uk](http://www.ayme.org.uk) (Action for Youth with ME is a useful and effective patient support group)

### Management of chronic pain

- Rehabilitation should be multidisciplinary
- Amitriptyline and fluoxetine in moderate doses may help to reduce pain, promote sleep, and lift mood, regardless of the presence of depression
- Hypnotherapy may be helpful
- Other complementary therapies—such as massage or aromatherapy—may help
- Consultation with a chronic pain service is useful when the treatment above does not control symptoms or improve function. Drugs such as gabapentin should be used only in a chronic pain service

### A memorable patient

#### Self treatment, African style

In my 22 years of medical and surgical work in Africa, this was a unique experience. A truck driver whose job involved long journeys in remote areas of Africa attended an outreach clinic that I was running with my friend and colleague Jack Gardner from the United States.

The patient complained of a three year history of difficulty passing urine, being able to produce only a thin trickle of urine with straining. He had been to many hospitals, where his urethral passage was dilated many times, and he had been told that the passage had been narrowed because of sexually transmitted disease, apparently acquired while away from home because of his work. He mentioned that he had episodes of pus-like discharge from his penis in the past few years.

We offered him another operation, but he declined. Since his last operation, some six months previously, he had resorted to self treatment. He told us that he had made a dilator for himself from a piece of electric copper wire, which he inserted into his penile urethra until it went so far that the urine could pass with ease after a few attempts. Apparently, it worked every time and had never caused trauma or bleeding. He did still have occasional dysuria, for which he went to clinics and got pills once in a while.

Clinical examination revealed a normal external urethra and normal prostate. I sent him for x rays of the bladder and kidney and ultrasound scan, which were normal. Urethrography was not possible because of lack of dye. Urine microscopy showed pus cells and red blood cells consistent with a urinary tract infection, probably gonococcal urethritis, for which he was given antibiotics. We recommended that he undergo urethroplasty, but he considered his copper dilator was good enough and cheaper.

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